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January 14, 2004
Reply to Office Action of October 14, 2003

REMARKS

Applicants respectfully request the Examiner to reconsider the present application in view of the foregoing amendments to the present specification. No new matter has been added by way of these amendments since these amendments are obviously editorial in nature (i.e., correction of typographical errors). Based upon the above considerations, entry of the present amendment is respectfully requested.

Claims 1-15 are pending in the present case. In view of the following remarks, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.

Issues under 35 U.S.C. § 112, Second Paragraph

Claims 1-15 stand rejected under 35 U.S.C. § 112, second paragraph, for reasons of indefiniteness. Applicants respectfully traverse.

A methyl ester is included in the ethylene-vinyl acetate copolymer (see the last two lines of paragraph 2 in the Office Action). Accordingly, with this clarification, reconsideration and withdrawal of this rejection are respectfully requested.

Issues under 35 U.S.C. § 103(a)

Claims 1-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Iwasawa et al. '856 (U.S. Patent No. 4,497,856) in view of Kitahara et al. '870 (U.S. Patent No. 6,372,870). Applicants

respectfully traverse, and reconsideration and withdrawal of this rejection are respectfully requested.

The Present Invention and Its Advantages

Conventional fluorine-containing polymers have been used in different applications to provide better heat resistance, chemical resistance and electrical insulating properties (as discussed by Applicants in their specification at page 1, starting at line 12). However, such conventional polymers have insufficient mechanical strength, reliability, adhesion strength and/or are too expensive. Other polymers have been proposed to improve upon such drawbacks. However, such polymers cannot be effectively utilized as adhesives due to the delamination or discoloration that occurs during the molding or processing thereof at high temperatures (*i.e.*, see page 2, starting at line 10 of the present specification).

In contrast, the present invention has achieved a laminate with improved adhesion, whereby the adhesion strength does not significantly decrease over time, as well as high resistance to fuels. Specifically, the present invention is directed to a laminate comprising layers (1) to (3). Layer (1) is a layer of a tetrafluoroethylene copolymer comprising 30 to 81 % by mole of tetrafluoroethylene and 70 to 19 % by mole of at least one other monomer and having a carbonate group in a polymer chain or at a polymer chain terminal, which has a melt flow rate of 0.1 to 100 g/10

minutes (230°C, 5 kg-load) and a melting point of 90°C to 230°C. Layer (2) is a layer of an ethylene-vinyl acetate copolymer formed on one surface of the layer (1), which satisfies the following relationship of $X \times Y/100 \geq 7.0$, wherein X is a vinyl acetate content (% by mole) and Y is a saponification degree of a methyl ester (%) (in the copolymer). And layer (3) is a layer of a polyolefin resin formed on the mentioned layer (2).

Even the unexpected advantages of the present invention have been experimentally confirmed. As can be seen from Table 1, the present invention does not dissolve in fuel and/or has unexpectedly better initial adhesive strength (i.e., compare to Comparative Example 2, which has a saponification degree of 40%, and $X \times Y/100$ has a 4.48 value; similarly, Comparative Example 3 has a saponification degree of 0% and a $X \times Y/100$ value of zero).

However, the cited combination of the Iwasawa '856 and Kitahara '870 references fail to disclose all features and advantages of the present invention.

Distinctions over the Combination of Iwasawa '856 and Kitahara '870

Iwasawa '856 discloses a multi-layered container comprising an inner layer, an outer layer and an intermediate layer, and uses "ethylene-vinyl acetate copolymer" graft-modified with an unsaturated glycidyl compound in the intermediate layer (see Abstract; the paragraph bridging Cols. 2-3). In general, the term "ethylene-vinyl acetate

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copolymer" means a copolymer of ethylene and vinyl acetate. However, the acetate groups here are not saponified. This is in contrast to the present invention.

Instead, the laminate of the present invention comprises a layer (2) of an ethylene-vinyl acetate copolymer which has been saponified, since $X \times Y/100$ is equal to or larger than 7.0. As instantly claimed, the saponification degree Y is not zero (0) in the present invention.

In Iwasawa '856, since the ethylene-vinyl acetate copolymer is not saponified, the saponification degree of Y is zero (0). Thus, a value for $X \times Y/100$ is also zero (0). Therefore, the cited primary reference of Iwasawa '856 fails to disclose all features as instantly claimed (i.e., a layer satisfying the relationship of $X \times Y/100 \geq 7.0$). U.S. case law squarely holds that a proper obviousness inquiry requires consideration of three factors: (1) the prior art reference (or references when combined) must teach or suggest all the claim limitations; (2) whether or not the prior art would have taught, motivated, or suggested to those of ordinary skill in the art that they should make the claimed invention (or practice the invention in case of a claimed method or process); and (3) whether the prior art establishes that in making the claimed invention (or practicing the invention in case of a claimed method or process), there would have been a reasonable expectation of success. See *In re Vaeck*, 947 F.2d, 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991); see also *In re Kotzab*, 55 USPQ2d 1313,

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1316-17 (Fed. Cir. 2000). Here, there is no disclosure of all claimed features in the cited combination of Iwasawa '856 and Kitahara '870. Further, the Kitahara '870 reference does not account for the deficiencies of the cited primary reference of Iwasawa '856. Despite the assertions in the Office Action, there is still no disclosure in either reference of all features as instantly claimed. Thus, Applicants respectfully submit that a *prima facie* case of obviousness has not been established, and reconsideration and withdrawal of this rejection are respectfully requested.

In addition, Applicants respectfully submit that the other requirements for a *prima facie* case of obviousness have not been satisfied. This is because Iwasawa '856 has the glycidyl group of the grafted polymer contributing to the adhesion of the layers. This is in contrast to the present invention, wherein the present invention has hydroxyl groups that serve to improve adhesion of the layer. Thus, one of ordinary skill in the art would not be motivated or reasonably expect to be successful in combining Iwasawa '856 with Kitahara '870 in order to achieve the present invention since neither reference suggests or recognizes the saponification degree and/or adhesion features as instantly claimed. Instead, the skilled artisan would focus on how the hydroxyl groups of Iwasawa '856 lead to improved adhesion, in addition to how the described polymer has no saponification. Accordingly, Applicants respectfully submit that the requisite motivation and

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reasonable expectation of success are lacking, and that a *prima facie* case of obviousness has not been established with respect to the combination of Iwasawa '856 and Kitahara '870.

Further, Applicants traverse the conclusion in the Office Action that it would be obvious to the skilled artisan to "have the layer of tetrafluoroethylene copolymer in Iwasawa et al. comprise 30 to 80% by mole ... as suggested by Kitahara et al. in order to produce a laminate with a layer of tetrafluoroethylene copolymer" (page 3, lines 10-16). Applicants submit that there is still no reason for one of ordinary skill in the art to refer to the particular reference of Kitahara '870. While the reference need not expressly teach that the disclosure contained therein should be combined with another, *see Motorola, Inc. v. Interdigital Tech. Corp.*, 43 USPQ2d 1481, 1489 (Fed. Cir. 1997), the showing of combining references "must be clear and particular". *See In re Dembiczak*, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). Here, there is no guidance in any of the cited references to achieve the formulations as presently claimed. Applicants respectfully submit that combining Iwasawa '856 with Kitahara '870 is improper.

Further, Applicants traverse the conclusion that employing the tetrafluoroethylene copolymer of Kitahara '870 is "old and well-known" (page 3, line 5 of the Office Action). There is still no disclosure in Kitahara '870 that would make the skilled artisan to refer to Iwasawa '856. Instead, the reasoning in the Office Action equals an "obvious to

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try" rationale (Kitahara '870 discloses some component; combining this component with Iwasawa '856), which is improper for an analysis of patentability under § 103(a). See *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1599 (CAFC 1988). Thus, Applicants respectfully submit that one of ordinary skill in the art would not combine the cited references, and that the asserted combination of references is improper.

The Office Action also states that even though Iwasawa '856 fails to disclose the layer of ethylene-vinyl acetate copolymer satisfying the $X \times Y/100$ relationship and saponification degree as instantly claimed, this is a "mere recognition of latent properties" (see page 3, last paragraph of the Office Action). In response, Applicants respectfully submit that Iwasawa '856 has acetate groups in its copolymer that are not saponified, as mentioned above. Further, Applicants respectfully refer the Examiner to the unexpected results of the present specification, whereby the Comparative Examples have such values that fall outside what is instantly claimed (i.e., 0% saponification degree). Thus, the present invention is patentably distinct over the cited references, and the claimed features of the $X \times Y/100$ relationship and the saponification degree are not a mere recognition of latent properties (Iwasawa '856 does not even recognize a saponification degree above zero). Reconsideration and withdrawal of this rejection are respectfully requested.

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Unexpected Results Rebuts Any Asserted *Prima Facie* Case of Obviousness

In addition, Applicants respectfully submit that unexpected results exist for the present invention, which rebuts any asserted *prima facie* case of obviousness.

As mentioned above, the unexpected advantages of the present invention have been experimentally confirmed (i.e., Table 1 demonstrates how the present invention does not dissolve in fuel and/or has unexpectedly better initial adhesive strength over the comparative examples which have no existing or a small saponification degree). Because of these unexpected results, reconsideration and withdrawal of the rejection under § 103(a) are respectfully requested.

Conclusion

Thus, Applicants respectfully submit that one of ordinary skill in the art would not be motivated or reasonable expect to be successful, in combining the cited references in order to achieve the present invention. Further, the cited combination of references do not even satisfy the requirement of disclosing all claimed features for a *prima facie* case of obviousness. In addition, unexpected results exist for the present invention, which rebuts any asserted *prima facie* case of obviousness. Accordingly, Applicants respectfully request the Examiner to reconsider and to withdraw all rejections and allow the currently pending claims.

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A full and complete response has been made to all issues as cited in the Office Action. Thus, Applicants respectfully request that a timely Notice of Allowance issue for the present case.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Eugene T. Perez (Reg. No. 48,501) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: Abstract of the Disclosure

(Rev. 09/30/03)